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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,459	12/23/2003	Jung Hwan Hwang	P69413US0	8147

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JACOBSON HOLMAN PLLC
400 SEVENTH STREET N.W.
SUITE 600
WASHINGTON, DC 20004

EXAMINER

AL NAZER, LEITH A

ART UNIT	PAPER NUMBER
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2821

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/743,459

Applicant(s)

HWANG ET AL.

Examiner

Leith A. Al-Nazer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 June 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/23/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: reference numbers 14 and 24. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 8 is objected to because of the following informalities:

The word "thorough" in line 7 of claim 8 should be changed to "through" in order to make sense in the context of the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites "a second dielectric substrate, which is stacked on the first dielectric substrate, including a microstrip feeding line formed on the bottom of the second dielectric substrate". It is unclear whether the microstrip feeding line is on the same side of the second dielectric substrate as the first dielectric substrate or on the opposite side of the second dielectric substrate.

Claim 4 recites "...the slots formed on the top of the first dielectric substrate are constructed to iteratively repeat two bend shapes and the slot formed on the bottom of the first dielectric substrate comprises a portion for connecting between two bend-shaped portions". The wording of claim 4 is vague and confusing, and Examiner is unsure what structure Applicant is attempting to claim.

Claim 5 recites "...the slot formed on the top and bottom of the first dielectric substrate is constructed to iteratively repeat two bend shapes and to be separated at given intervals". The wording of claim 5 is vague and confusing, and Examiner is unsure what structure Applicant is attempting to claim.

Claim 8 recites the phrase "...to be crossed with the slots formed on the bottom of the dielectric substrate". The wording of this phrase is vague, and Examiner is unsure what structure Applicant is attempting to claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-7 and 9-15 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,407,715 to Chen.

With respect to claims 1 and 4-7, Chen teaches a slot antenna comprising a first dielectric substrate (region between 52A and 52B in figure 5; column 5, lines 31-39) including slots formed on a top and a bottom of the first dielectric substrate (figure 5), ground surfaces (52A and 52B) formed on the top and the bottom respectively, and a first connection unit (66A, 66B, and 68) for connecting ground surfaces formed on the top and the bottom; and a second dielectric substrate (region between 54 and 52B in figure 5; column 5, lines 31-39), which is on the first dielectric substrate, including a microstrip feeding line (64) formed on the bottom of the second dielectric substrate to feed electromagnetic energy and a second connection unit (58; column 4, lines 30-40) for connecting the microstrip feeding line and the ground surface formed on the bottom of the first dielectric substrate.

With respect to claim 2, Chen teaches the first connection unit and/or the second connection unit being formed to have a shape of at least one conduction hole in the dielectric substrate, or a shape of conduction walls (66A, 66B, and 68 in figure 5) on side surfaces of the dielectric substrate.

With respect to claim 3, Chen teaches the slots formed on the top of the first dielectric substrate being constructed to represent a bend shape (figure 5).

Claims 9-15 require the electric fields on the top and the bottom of the dielectric substrate be generated in the same direction. Chen has the same structural configuration as the present invention. Therefore, although not explicitly stated in Chen, it is inherent that the electric fields generated on the top and bottom of the dielectric substrate in the system of Chen would be in the same direction.

7. Claims 1-7 and 9-15 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,515,630 to Honda.

With respect to claims 1 and 4-7, Honda teaches a slot antenna comprising a first dielectric substrate (interior region 82 in figure 4) including slots formed on a top and a bottom of the first dielectric substrate (figure 4), ground surfaces formed on the top and the bottom respectively, and a first connection unit (edge 74) for connecting ground surfaces formed on the top and the bottom; and a second dielectric substrate (32), which is on the first dielectric substrate, including a microstrip feeding line (34) formed on the bottom of the second dielectric substrate to feed electromagnetic energy and a

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second connection unit for connecting the microstrip feeding line and the ground surface formed on the bottom of the first dielectric substrate (column 6, lines 43-64).

With respect to claim 2, Honda teaches the first connection unit and/or the second connection unit being formed to have a shape of at least one conduction hole in the dielectric substrate, or a shape of conduction walls (edge 74 in figure 4) on side surfaces of the dielectric substrate.

With respect to claim 3, Honda teaches the slots formed on the top of the first dielectric substrate being constructed to represent a bend shape (96 and 100 in figure 4).

Claims 9-15 require the electric fields on the top and the bottom of the dielectric substrate be generated in the same direction. Honda has the same structural configuration as the present invention. Therefore, although not explicitly stated in Honda, it is inherent that the electric fields generated on the top and bottom of the dielectric substrate in the system of Honda would be in the same direction.

Citation of Pertinent References

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patent documents further show the state of the art with respect to slot antenna configurations:

- a. U.S. Patent No. 5,977,916 to Vannatta et al.
- b. U.S. Patent No. 6,133,879 to Grangeat et al.
- c. U.S. Patent No. 6,515,626 to Bark et al.

- d. U.S. Patent No. 6,636,183 to Hellgren et al.
- e. U.S. Patent No. 6,664,931 to Nguyen et al.

Communication Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leith A. Al-Nazer whose telephone number is 571-272-1938. The examiner can normally be reached on Monday-Friday, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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